

# POWER MEASUREMENT IN ELECTRICAL SYSTEMS

BUILT-IN DEVICES FOR MEASUREMENT IN POWER SYSTEMS



## SIRAX MONITOR SERIES

SIRAX BM1200 • SIRAX BM1400/BT5700 • SIRAX MM1200 • SIRAX MM1400



## Built-in devices for measurement in power systems



Camille Bauer Metrawatt offers a broad spectrum of high-quality measuring instruments for all tasks within electrical power systems. With the built-in units of the SIRAX series, we complement our SINEAX high-performance measuring transducers thus completing our portfolio. SIRAX devices provide the basic functionalities of a measuring transducer at a very good price/performance ratio.

We offer simple and cost-effective power indicators in our basic monitors BM1200 and BM1400.

The multifunctional monitoring devices offer an additional visualisation and operation concept. The MM1200 and the MM1400 are equipped with and may be configured via a simple menu. Via RS485 (Modbus RTU) interface and the CB-Configurator software the measured values may be programmed even more easily.



## SIRAX BM1200



### CUSTOMER BENEFITS

- Well-visible one-line indication of measured data with backlit LCD display
- Easy on-site operation and parameterisation via push buttons or via CB-Configurator Software
- Automatic cyclical scrolling of measured data
- Integrated active and reactive energy meters, cost-effective alternative to energy meters

### APPLICATION

The devices are designed for measurement in electrical distribution systems or industrial plants. They are suitable as a replacement of analogue built-in measuring devices as well as a cost-effective alternative to energy meters. All parameters may be set on site. A Modbus RTU (RS485) interface is available for the connection of the devices to higher-ranking systems.

### TECHNICAL DATA

Measuring input:	Nominal voltage 57.7...277 V <sub>LN</sub> , 100...480 V <sub>LL</sub> Nominal current 1 / 5 A Frequency range 45...50/60...65 Hz	Outputs:	4000 pulses/kWh
System types:	One-phase system, 2-wire three-phase, 3 or 4 wire asymmetrical	Interface:	RS485 (Modbus RTU)
Power supply :	60...300 V AC/DC	Display:	LCD display, 1 line, 3 measured values, 4 digits each
Accuracy:	Voltage and current ±0.5 % Active power ±0.5 % Reactive power ±1.0 % Power factor ±3.0° THD U,I ±2,0 % Active energy Class 1.0 Reactive energy Class 2	Meters:	Active and reactive energy meter incoming and outgoing
		Counters:	Operating hours counter for one consumer and the device itself
		Safety:	Double insulation Degree of pollution: 2 Overvoltage category: CATIII 300 V Protection rating: Front IP50, housing IP20
		Dimensions:	Control panel installation: 96 x 96 x 35/55 mm

ARTICLE NO.	DESCRIPTION
174 962	SIRAX BM1200, 3PH - 415VL-L - 5A/1A - 60...300V AC/DC
174 970	SIRAX BM1200, 3PH - 415VL-L - 5A/1A - 60...300V AC/DC - RS485



## SIRAX BM1400 / BT5700



SIRAX BM1400



SIRAX BT5700

### CUSTOMER BENEFITS

- Clear and unambiguous indication of measured values on LED display
- BT5700 for top hat-rail with backlit LCD display
- Easy on-site operation and parameterisation via push buttons or via CB-Configurator Software
- Automatic cyclical scrolling of measured data
- Integrated active and reactive energy meters

### APPLICATION

The devices are designed for measurement in electrical distribution systems or industrial plants and machines. All parameters may be set on site. The interfaces Modbus RTU (RS485) or Modbus TCP (Ethernet) are available for the connection of the devices to higher-ranking systems.

### TECHNICAL DATA

Measuring input:	Nominal voltage 57.7...277 V <sub>LN</sub> , 100...480 V <sub>LL</sub> Nominal current 1 / 5 A Frequency range 45...50/60...66 Hz
System types:	Three-phase system, 3 or 4-wire asymmetrical
Power supply:	100 ... 250 V AC/DC
Accuracy:	Voltage and current ±0.5 % Active and reactive power ±0.5 % Power factor ±3.0° THD U, I ±1.0 % Active energy Class 0.5 Reactive energy Class 2
Outputs:	Analogue 2 x 4...20mA Relays 1 NO / 1 NC
Interfaces:	RS485 (Modbus RTU), Ethernet (Modbus TCP)
Display:	BM1400: LED display, 3 lines, 4 digits each, measured values BT5700: LCD display, 2 lines, measured values
Meters:	Active and reactive energy meter incoming and outgoing
Counters:	Operating hours counter for one consumer and the device itself
Safety:	Double insulation Degree of pollution: 2 Overvoltage category: CATIII 300 V Protection rating: Front IP54, housing IP20
Dimensions:	Control panel installation: 96 x 96 x 80 mm Top hat-rail: 96 x 96 x 117 mm (BT5700)

ARTICLE NO.	DESCRIPTION
174 988	SIRAX BM1400, 0,5 - 3PH - 440VL-L - 5A/1A - 100...250 V AC/DC
174 996	SIRAX BM1400, 0,5 - 3PH - 440VL-L - 5A/1A - 100...250 V AC/DC - RS485 - 1 puls - 2x4...20 mA analog
175 001	SIRAX BM1400, 0,5 - 3PH - 440VL-L - 5A/1A - 100...250 V AC/DC - Ethernet
175 134	SIRAX BT5700, 0,5 - 3PH - 440VL-L - 5A/1A - 100...250 V AC/DC - RS485





# SIRAX MM1200



## CUSTOMER BENEFITS

- Clear and unambiguous indication of measured values on TFT display
- Easy operation and parameterisation via touchscreen or via CB-Configurator Software
- Automatic cyclical scrolling of measured data
- Integrated active and reactive energy meters

## APPLICATION

The devices are designed for measurement in electrical distribution systems, industrial plants or building automation. They may be used for the acquisition and display of standard electrical variables such as current, voltage, frequency, power and many more. All parameters may be set via the touchscreen. A Modbus RTU (RS485) interface is available for the connection of the devices to higher-ranking systems.

## TECHNICAL DATA

Measuring input:	Nominal voltage 57.7...277 V <sub>LN</sub> , 100...480 V <sub>LL</sub> Nominal current 1 / 5 A Frequency range 45...50/60...66 Hz	Interface:	RS485 (Modbus RTU)
System types :	Three-phase, 3 or 4-wire asymmetrical	Display:	Menu-guided TFT touchscreen, digital and graphic representations
Power supply:	100...250 V AC/DC	Meters:	Active and reactive energy meter incoming and outgoing energy representable as effective value daily or monthly report
Accuracy:	Voltage and current ±0.5 % Active and reactive power ±0.5 % Power factor ±3.0° THD U,I ±1.0 % Active energy Class 0.5 Reactive energy Class 2	Counters:	Operating hours counter for one consumer and the device itself
Outputs:	Analogue 2 x 4...20 mA Relays 1 NO / 1 NC	Safety:	Double insulation Degree of pollution: 2 Overvoltage category : CATIII 300 V Protection rating: Front IP54, housing IP20
		Dimensions:	Control panel installation: 96 x 96 x 80 mm

ARTICLE NO.	DESCRIPTION
175 019	SIRAX MM1200, 3PH - 440VL-L - 5A/1A - 100...250 V AC/DC - DE
175 027	SIRAX MM1200, 3PH - 440VL-L - 5A/1A - 100...250 V AC/DC - EN
175 035	SIRAX MM1200, 3PH - 440VL-L - 5A/1A - 100...250 V AC/DC - ES
175 043	SIRAX MM1200, 3PH - 440VL-L - 5A/1A - 100...250 V AC/DC - FR
175 051	SIRAX MM1200, 3PH - 440VL-L - 5A/1A - 100...250 V AC/DC - RS485 - 1 puls - 2x4...20 mA analog - DE
175 069	SIRAX MM1200, 3PH - 440VL-L - 5A/1A - 100...250 V AC/DC - RS485 - 1 puls - 2x4...20 mA analog - EN
175 077	SIRAX MM1200, 3PH - 440VL-L - 5A/1A - 100...250 V AC/DC - RS485 - 1 puls - 2x4...20 mA analog - ES
175 085	SIRAX MM1200, 3PH - 440VL-L - 5A/1A - 100...250 V AC/DC - RS485 - 1 puls - 2x4...20 mA analog - FR



## SIRAX MM1400



### CUSTOMER BENEFITS

- Clear and unambiguous indication of measured values on TFT display
- Easy operation and parameterisation via touchscreen or via CB-Configurator Software
- Monitoring and analysis of harmonics (U, I)
- Integrated active and reactive energy meters

### APPLICATION

The devices are designed for energy measurement and industrial building automation. They may be used for the acquisition and display of electrical energy consumptions, standard electrical variables such as current, voltage, frequency, power as well as harmonics up to the 56th. All parameters may be set via the touchscreen. A Modbus RTU (RS485) interface is available for the connection of the devices to higher-ranking systems.

### TECHNICAL DATA

Measuring input :	Nominal voltage 57.7...288 V <sub>LN</sub> , 100...500 V <sub>LL</sub> Nominal current 1 / 5 A Frequency range 45...50/60...66 Hz TRMS up to 56th harmonic	Interface:	RS485 (Modbus RTU)
System types:	Three-phase, 3 or 4-wire asymmetrical	Display:	Menu-guided TFT touchscreen, digital and graphic representations
Power supply:	60 ... 300 V AC/DC	Meters:	Active and reactive energy meter incoming and outgoing representable effective value, daily or monthly report
Accuracy:	Voltage and current $\pm 0.2\%$ Active and reactive power $\pm 0.2\%$ Power factor $\pm 2.0^\circ$ Harmonics $\pm 1.0\%$ THD U,I $\pm 1.0\%$ Active energy Class 0.5 Reactive energy Class 2	Counters:	Operating hours counter for one consumer and the device itself
Outputs:	4000 pulses / kWh	Safety:	Double insulation Degree of pollution: 2 Overvoltage category : CATIII 300 V Protection rating: Front IP54, housing IP20
		Dimensions:	Control panel installation: 96 x 96 x 80 mm

ARTICLE NO.	DESCRIPTION
175 093	SIRAX MM1400, 3PH - 500VL-L - 5A/1A - 60...300 V AC/DC - RS485 - DE
175 100	SIRAX MM1400, 3PH - 500VL-L - 5A/1A - 60...300 V AC/DC - RS485 - EN
175 118	SIRAX MM1400, 3PH - 500VL-L - 5A/1A - 60...300 V AC/DC - RS485 - ES
175 126	SIRAX MM1400, 3PH - 500VL-L - 5A/1A - 60...300 V AC/DC - RS485 - FR



# SMARTCOLLECT



SMARTCOLLECT is a data management software which can acquire measured data in an easy manner and store the same in an open SQL database. This software offers basic functionalities for data analysis and for easy energy monitoring as well as the easy preparation and disposal of reports.

Providing a mature graphic user interface, the SMARTCOLLECT software is clearly structured and easily operated.

SMARTCOLLECT is modularly designed and permits supplementing modules or functions at any time.

### CUSTOMER BENEFITS

- Easy data communication via Modbus RTU / TCP, ECL and SmartControl-Direct
- Connection also via OPC
- Devices of Camille Bauer and Gossen Metrawatt are already predefined and selectable in the software
- Open for the devices of all manufacturers
- Data is stored in an open SQL database
- Modular cost / performance model – basic version may be extended at any time

### MODULAR DESIGN

#### COMPONENTS

The SMARTCOLLECT data management software consists of the following components:

#### SMARTCOLLECT CLIENT



MORE CLIENTS POSSIBLE



#### SMARTCOLLECT CLIENT

Graphic visualisation of queried data

Export via Excel file

User interface to define the data sources to be read out as well as error and warning messages via email.

#### SQL DATABASE



#### SMARTCOLLECT DATABASE

SQL database

Contains the collected data

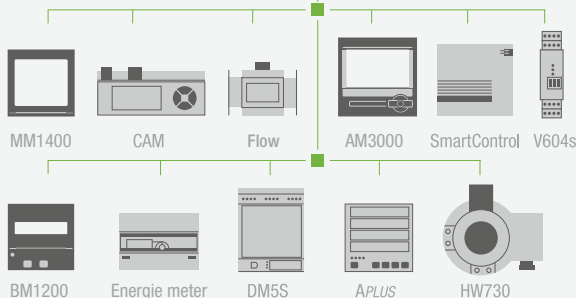
Open and unencrypted

#### SMARTCOLLECT SERVER



#### SMARTCOLLECT SERVER

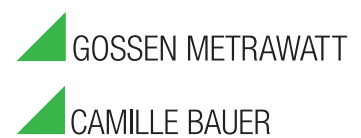
Collects and configures data from active sources and channels and writes the same directly into the central database.



SMARTCOLLECT software components may be installed on an individual system or on several servers or computers.



**GMC INSTRUMENTS**



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